

Nathan J. McGregor

University of California Santa Cruz
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Education

University of California Santa Cruz

Ph.D., Earth and Planetary Sciences, 2027

Boise State University

B.S., Physics and Astrophysics, 2021

B.A., Political Science, 2012

Academic Appointments

University of California Santa Cruz, Earth and Planetary Sciences

Advisors: Profs. Francis Nimmo and Myriam Telus

Graduate Student Researcher, 2021–2027

Teaching Assistant, 2022–2027

Boise State University, Physics

Advisor: Prof. Daryl Macomb

Undergraduate Student Researcher, 2019–2021, 2011–2012

Teaching Assistant, 2019–2021

Lab Instructor, 2019–2021

University of Hawai‘i at Mānoa, Oceanography

Advisor: Prof. Angelos Hannides

Undergraduate Student Researcher, 2012–2013

Publications

3. **McGregor, N. J.**, Nimmo, F., Gillmann, C., Golabek, Lourenço, D. L. (In prep). Rates of true polar wander on Venus driven by mantle convection. *Geophys. Res. Lett.*
2. **McGregor, N. J.**, Thompson, M. A., and Telus, M. (In prep). Linking rocky exoplanetary atmospheres and interiors through meteorite outgassing. *Nature Astronomy*.
1. **McGregor, N. J.**, Nimmo, F., Gillmann, C., Golabek, G. J., Plattner, A. M., and Conrad, J. W. (2025). Probing the viscosity of Venus’s mantle from dynamic topography at Baltis Vallis. *J. Geophys. Res. Planets*, 130, e2024JE008581. <https://doi.org/10.1029/2024JE008581>.

Conference Presentations (*indicates undergraduate student)

15. **McGregor, N. J.**, Nimmo, F., Gillmann, C., Golabek, Lourenço, D. L. (2025). Rates of true polar wander on Venus driven by mantle convection. Bay Area Planetary Science (BAPS) Conference.
14. **McGregor, N. J.** (2025). What meteorites tell us about planets around other stars. UC Santa Cruz Graduate Research Symposium.
13. **McGregor, N. J.**, Thompson, M. A., Telus, M., and Schaefer, L. (2024). Meteorite outgassing experiments as a tool for linking the atmospheric and bulk compositions of rocky planets. 56th Annual Division for Planetary Sciences Meeting. #107.03.

12. **McGregor, N. J.**, Thompson, M. A., Telus, M., and Fortney, J. (2023). Chondritic meteorite outgassing experiments: A novel technique to constrain the early atmospheric composition of terrestrial planets. American Geophysical Union Fall Meeting. #3042.
11. **McGregor, N. J.**, Nimmo, F., Gillmann, C., Golabek, G., Plattner, A. & Conrad, J. W. (2023). Dynamic topography of Baltis Vallis reveals low viscosity of the Venusian mantle. American Geophysical Union Fall Meeting. #3145.
10. **McGregor, N. J.**, Nimmo, F., Gillmann, C., Golabek, G., Plattner, A. & Conrad, J. W. (2023). Dynamic topography of Baltis Vallis reveals low viscosity of the Venusian mantle. Venus as a System Conference. #8047.
9. Trodden, M.*, Elling, M.*, **McGregor, N. J.**, Thompson, M. A., and Telus, M. (2023). Chondritic meteorite outgassing experiments: A novel technique to constrain the early atmospheric composition of terrestrial planets. Bay Area Planetary Sciences Conference.
8. **McGregor, N. J.**, Thompson, M. A., Kirk, J., Telus, M., and Nimmo, F. (2023). Constraining accretional volatile depletion with meteorite outgassing experiments. The Meteoritical Society Meeting. #6252.
7. **McGregor, N. J.** (2023). Evidence for a heat-pipe Venus. UC Santa Cruz Graduate Research Symposium.
6. **McGregor, N. J.**, Nimmo, F., Gillmann, C., Golabek, G., Plattner, A., and Conrad, J. W. (2023). Constraining Venus' convection regime using Baltis Vallis topography. European Geosciences Union General Assembly. #9783.
5. **McGregor, N. J.**, Nimmo, F., Gillmann, C., Golabek, G., Plattner, A., and Conrad, J. W. (2023). Constraining Venus' convection regime using Baltis Vallis topography. Lunar and Planetary Science Conference. #1724.
4. Calderon, T.*, Jorge-Chavez, F.*, **McGregor, N. J.**, & Telus, M. (2022). Investigating Mn rims of chondrule meteorites. UC Santa Cruz Research Experiences for Undergraduates Program on Sustainable Materials.
3. **McGregor, N. J.** & Macomb, D. (2020). Photometric monitoring of MRK 501: A model for measuring the optical variability of BL Lacs. Idaho Conference on Undergraduate Research. #131.
2. **McGregor, N. J.** & Macomb, D. (2020). Photometric monitoring of MRK 501: A model for measuring the optical variability of BL Lacs. Boise State University Research Showcase. #119.
1. **McGregor, N. J.** & Macomb, D. (2012). Identifying X-ray sources in Local Group galaxies using Fourier analysis of time series data. Boise State University Undergraduate Research and Scholarship Conference. #22.

Funding and Awards

ARCS Foundation Fellowship, 2025–2026, \$13,333

Regents Fee Fellowship, 2025–2026, \$7,560

Best Presentation of the Physical and Biological Sciences Division, 2025 UC Santa Cruz Graduate Symposium, \$250

Rita Olsen Pister Endowed Scholarship, Women's Club, 2025, \$1,000

STARRS Re-entry Scholarship, 2025, \$1,000

Japan Society for the Promotion of Science (JSPS) Summer Fellowship, 2024, \$5,000

SOKENDAI Japan International Internship, 2023, \$3,000

Venus as a System Conference Travel Award, 2023, \$1,200

Culturally Inclusive Planetary Engagement Workshop, 2023, \$500

Regent's Fellowship, 2021–2023, \$24,000
Inclusive Leadership Fellowship, 2020–2021, \$8,850
Higher Education Research Council Fellowship, 2020, \$3,000
Social Impact Fellowship, 2014, \$4,000
Student Research Initiative Fellowship, 2014, \$2,000

Invited Talks

Probing the viscosity of Venus's mantle from dynamic topography at Baltis Vallis, Organization for Venus Early-Career Networking, 2025
The return to Venus: What we've learned and what's next, Yakima Valley College, 2025
What meteorites tell us about planets around other stars, Yakima Valley College, 2025
Linking rocky exoplanetary interiors and atmospheres through meteorite outgassing, Department of Earth and Planetary Sciences Alumni Webinar Series, UC Santa Cruz, 2025
What meteorites tell us about rocky exoplanetary atmospheres, Space Cafe Tokyo, 2024 (cancelled)
Pride in space: Queer astronauts and the 2023 solar eclipse, Central California Queer Youth Summit, 2023
Pride in STEM: LGBTQ+ youth changing the world through STEM, Central California Queer Youth Summit, 2022
Graduate Student Panel, Idaho Conference on Undergraduate Research, 2022
OSIRIS-REx Mission, Boise State University, 2021
Lunar eclipses, Boise State University, 2021

Professional Activities

Venus Exploration Analysis Group (VEXAG) Steering Committee, Scribe, 2024–2026
VEXAG Working Groups: Inclusion, Diversity, Equity, and Access; Venus as an Analog for Terrestrial Exoplanets; Venus Mapping, 2024
VEXAG 2024 Scientific Organizing Committee, 2024
AAS DPS 2024 Scientific Organizing Committee, 2024
The Bulletin of the American Astronomical Society (BAAS), Celebrating the Wonder of Science in the Shadow, Editor, 2024
Bay Area Planetary Science Conference Organizing Committee, Member, 2023
NASA Proposal Review Panel, 2022
NASA Proposal Writing and Evaluation Academy, 2020

Outreach and Service

Science Graduate Advisory Council, UCSC Science Division, Graduate Representative, 2025–2026
Faculty Meetings, UCSC EPS Department, Graduate Representative, 2025–2026
Project for Inmate Education, Santa Cruz County Main Jail, Instructor, College Algebra, 2025
Alumni Advisory Council, UCSC EPS Department, Graduate Representative, 2025–2026
Committee on Teaching, UCSC Academic Senate, Graduate Representative, 2024–2026
NASA Community College Network, Subject Matter Expert, 2023–Present
UCSC GradPath Mentorship Program, Women in Science and Engineering, Mentor, 2023–2024
Committee on Diversity, Equity, and Inclusion, UCSC Academic Senate, Graduate Representative, 2022–2024
Santa Cruz Queer Youth Task Force and Safe Schools Project, STEM Coordinator, 2022–2024
Cosmochemistry Reading Group, UCSC, Organizer, 2022–2023
Astrobiology Reading Group, UCSC, Co-organizer, 2022–2023

Undergraduate Mentorship Program, UCSC EPS Department, Mentor, 2022–2024
Diversity, Equity, and Inclusion Committee, UCSC EPS Department, Member, 2021–2024
Geoscientists Encouraging Openness and Diversity in the Earth Sciences, UCSC EPS Department,
Leadership Board Member, 2021–2023
STEM Camp, Sacajawea Elementary School, Volunteer, 2021
STEM Camp, Caldwell High School, Volunteer, 2021
Third Thursday Astronomy Series, Boise State Physics Department, Volunteer, 2021
Idaho State Correctional Institution Inmate Education, Volunteer, 2020
First Friday Astronomy Series, Boise State Physics Department, Volunteer, 2019–2021

Advised Students

Mia Trodden, UC Santa Cruz, 2023–2024 (currently a Ph.D. student at Purdue University)
Matraca Elling, Stony Brook University, Lamat REU Program, 2022–2023
Malcolm Seemann, UC Santa Cruz, 2022–2024

Professional Development

Supporting All Students in the Geosciences Professional Development Workshop, San Jose State
University Science Education Program, 2025–2026
Equity-Based Holistic Admissions in Graduate Education Workshop, 2024
Electron Probe Microanalyzer Workshop, Agricultural University of Athens, 2023
Culturally Inclusive Planetary Engagement Workshop, 2023
Advancing IDEA in Planetary Science, 2022

Teaching

Teaching Assistant, University of California Santa Cruz
EART 111 Mathematics in the Earth Sciences, Fall 2025
EART 160 Planetary Science, Fall 2024
EART 111 Mathematics in the Earth Sciences, Fall 2023
EART 111 Mathematics in the Earth Sciences, Fall 2022
Lab Instructor, Boise State University
PHYS 212L Physics II with Calculus, Summer 2021
PHYS 105 Stars and Cosmology (2 sections), Spring 2021
PHYS 101 Introduction to Physics, Fall 2020
PHYS 111 General Physics I, Summer 2020
PHYS 111 General Physics I, Spring 2020
PHYS 112 General Physics II, Fall 2019
Teaching Assistant, Boise State University
PHYS 341 Classical Mechanics, Spring 2021
PHYS 111 General Physics I, Spring 2020
PHYS 111 General Physics I, Fall 2019
MATH 170 Calculus I, Fall 2013
MATH 175 Calculus II, Summer 2012
MATH 170 Calculus I, Spring 2012
MATH 170 Calculus I, Fall 2011